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(54) **NONLINEAR MASS SENSORS BASED ON ELECTRONIC FEEDBACK AND METHODS OF USING THE SAME**

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CPC **G01H 13/00** (2013.01); **G01L 9/00** (2013.01); **G01P 15/00** (2013.01); **G01P 15/097** (2013.01)

(58) **Field of Classification Search**

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See application file for complete search history.

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(57) **ABSTRACT**

A device and method for sensing including a sensor having a functional surface layer located to interact with a material to be sensed, the sensor having an output that produces a signal responsive one or more of inertia, stiffness, acceleration, pressure, radiation, chemical compounds, and biological compounds; and further including electronics including: an input coupled to the sensor to receive a first signal therefrom; and a non-linearity provider that applies one or more non-linear operations to the input signal to generate a non-linear second signal.

6 Claims, 11 Drawing Sheets

